

06/17/99 Jc648 U.S. PTO

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Jc490 U.S. PTO
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Milano, June 14, 1999

DANIEL O'BYRNE* (Reg. No. 36,625)
DR. ING. N. ZANOTTI*
DIPL. ING. C. S. RENIERO*
S. L. A. MODIANO*

Re.: New US Application (small entity)
in the name of

Guido GHISOLFI

Agent's Docket: 32461/GM/lp

Hon.
COMMISSIONER OF PATENTS AND TRADEMARKS
WASHINGTON D.C. 20231
U. S. A.

Transmitted herewith are the following papers for filing a new Application:

- 1 - Specification and claims; Declaration, Power of Attorney and Petition duly signed
June 10, 1999 and attached thereto.
- 2 - ~~XX~~
- 3 - Deposit Account order for filing fee: US\$ 389.= dated June 14, 1999 (dupl.)
- 4 - Deposit Account order for Assignment fee: US\$ 40.= dated
- 5 - Assignment of the invention to SINCO RICERCHE S.p.A.
- 6 - Small entity verified Statement.

The priority of the here-under listed Application(s) is respectfully claimed:

- Italian Appln. for Invention No. MI98A001463 filed June 26, 1998
- Italian Appln. for invention No. MI98A002078 filed Sept. 25, 1998

A Certified Copy of the priority Application(s) will be sent in due course /~~XXXXXXXXXX~~

Please place of record in the file the enclosed papers and kindly acknowledge safe receipt thereof; moreover please readily collect the credit specified in the Deposit Account order, so as to allow the Application to receive the earliest possible filing date, however within: JUNE 26, 1999 - (CLAIMING BOTH PRIORITIES)

Respectfully submitted



Guido MODIANO
(Reg. No. 19,928)

Enclosures:

- Spec/claims+Combined Declaration/Power
~~XXXXXXXXXXXXXXXXXXXX~~
- Assignment+Assignment fee Dep. Acc. order
- Filing fee Dep. Acc. order (duplicate)
- Small entity verified Statement

THIS FORM MAY BE USED FOR REPRODUCTION PURPOSES. IT WILL NOT BE
REPRINTED BY THE PATENT OFFICE FOR DISTRIBUTION.

Case Docket No. 32461/GM/1p

THE COMMISSIONER OF PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the Patent Application of:

SMALL ENTITY

Inventor: Guido GHISOLFI

For: RECYCLABLE MULTI-LAYER MATERIAL OF POLYESTER RESIN

Enclosed are:

- ☒ Small Entity verified Statement.
- ☐ _____ sheets of drawing on strong paper (M.P.E.P. 608.02 - rev.81)
- ☒ An Assignment of the Invention to SINCO RICERCHE S.p.A.
- ☐ A Certified Copy of a _____ Application
- ☐ Associate Power of Attorney

CLAIMS AS FILED					
	(1) for	(2) number filed	(3) number extra	(4) rate	(5) basic fee \$ 380.=
Total claims		21 - 20 =	1	x\$ 9.=	9.=
Independent claims		1 - 3 =		x\$ 39.=	
				Total filing fee	US\$ 389.=

- ☒ Please charge my Deposit Account No. 13-3860 in the amount of US\$ 389.=. A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Account No. 13-3860. A duplicate copy of this sheet is enclosed.
- ☐ A check in the amount of _____ to cover the filing fee is enclosed.


Guido MODIANO

Attorney of Record

Milan, Italy
June 14, 1999

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))--SMALL BUSINESS CONCERN

Docket Number (Optional):
32461/GM/1p

Applicant or Patentee: **Guido GHISOLFI**

Application or Patent No.: _____

Filing Date or Issue Date: _____

Title: **RECYCLABLE MULTI-LAYER MATERIAL IN POLYESTER RESIN**

I hereby declare that I am

☐ the owner of the small business concern identified below:

☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN **SINCO RICERCHE S.p.A.**

ADDRESS OF SMALL BUSINESS CONCERN **Viale Azari, 110**

28048 VERBANIA PALLANZA - ITALY

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

☒ the specification filed herewith with title as listed above.

☐ the application identified above.

☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization having any rights in the invention is listed below:

☒ No such person, concern, or organization exists.

☐ Each such person, concern or organization is listed below:

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING **Ulderico ERCOLANI**

TITLE OF PERSON IF OTHER THAN OWNER **President of the Board of Directors**

ADDRESS OF PERSONS SIGNING **Via Appia Claudio, 10 - 00040 ARICCIA - ITALY**

SIGNATURE *Ulderico Ercolani*

DATE **June 10, 1999**

APPLICATION
FOR
UNITED STATES OF AMERICA

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it known that I,

Guido GHISOLFI
Italian citizen
of TORTONA – ITALY

have invented certain improvements in

“RECYCLABLE MULTI-LAYER MATERIAL IN POLYESTER
RESIN ”

of which the following description in connection with the accompanying drawings is a specification, like reference characters on the drawings indicating like parts in the several figures.

The present invention refers to a recyclable multi-layer material of polyester resin, suitable for the production of containers for beverages and foods on which it is stamped by pressing a pattern according to which by
5 folding, the shape of a container is obtainable. The material is heat-sealable and permits the closure of the container by heat-sealing.

The invention refers in particular to a material having gas barrier properties suitable for the production of containers for beverages such as fruit juices, medium shelf-life milk, tea and similar.

10 The invention also includes the containers obtained from the multi-layer material.

BACKGROUND OF THE INVENTION

The multi-layer material employed till now for the preparation of containers for beverages and foods such as fruit juices, milk or other,
15 includes essentially a functional layer of cardboard which gives to the container mechanical properties, in particular rigidity, and, adhered to the cardboard, in some cases, a layer of a thin sheet of aluminum which is coated on the side which comes into contact with the beverage or food, with a polyethylene film or similar polymeric material.

20 Containers produced with such multi-layer materials are difficult to recycle due to the different chemical nature of the various layers.

The recyclability of the material forming a container for foods or beverages is a very important requisite both from the point of view of savings that recycling allows to be obtained and from an ecological aspect.

25 The possibility of having a recyclable material is a very important topic in the field.

Containers for beverages and liquids produced of polymeric materials exist but do not present characteristics of rigidity comparable to those of cardboard and for this reason they do not result in being suitable to produce
30 rigid containers. The containers obtained with such materials come into the

category of small sacks (pouches).

The attempt to obtain containers with the necessary rigidity using polymeric materials has failed until now.

The rigidity in the containers is in function of the thickness of the wall
5 and more precisely varies with the cube of the wall thickness.

The use of polymeric materials such as polyolefins for the production of containers having sufficient rigidity would imply a thickness which is not economical and furthermore is not processable due to the difficulty in folding and sealing that is encountered in the phase of closing the container.

10 Another material such as foamed polystyrene is not employable due to its fragility when it is conformed into thin layers.

From the patent literature (US 5,000,991) rigid laminates are known which are utilized for the preparation of thermoformed containers for victuals, formed of a sheet of foamed polyester material and a film of the
15 same nature as the sheet, or of other polymeric material. Known from EB-A-836937 are semi-rigid laminates having a thickness of 0.5 to 1.5 mm and comprising a layer in polyester resin foam having density of 0.7 to 1 g/cm³ on which a layer of polymeric material having gas barrier properties, different from that of the layer in polyester foam, is adhered.

20 The laminates are utilized for the preparation by thermoformation of articles for packaging.

Mono and multi-layer materials comprising a layer of polymeric foam capable of being creased to form, by folding according to the pattern pressed on the material, the shape of the container, are not known in patent
25 literature.

The capability of a polymeric foamed material, mono layer or multi-layer, to be pressed with a pattern set to develop by folding the shape of a container, and the foldability of the material according to such a pattern, constitute indispensable requirements for the production of containers for
30 beverages and foods when using the creasing and folding technique.

A material is suitable for creasing if the pattern pressed on it remains stable over time and if in the stamping of such pattern there is no breakage which could impair the possibility of folding the material.

Moreover the material must be heat-sealable to render possible the
5 closure of the container.

SUMMARY OF THE INVENTION

It has now unexpectedly been found a recyclable multi-layer polymeric material formed of layers of polymeric material substantially of the same chemical nature, having sufficient rigidity to substitute cardboard, capable
10 of being creased and folded according to a pattern stamped on it and furthermore being heat-sealable.

The multi-layered material of the present invention is a material that comprises as essential layers a foamed sheet of polyester resin with density lower than 700 kg/m^3 and, adhered to said sheet, a heat-sealable film of
15 polyester resin capable of realizing by heat-sealing the closure of the container.

DETAILED DESCRIPTION OF THE INVENTION

The polyester film is adhered to the foam sheet with any procedure suitable to realize adhesion between the materials, for example by hot
20 lamination or gluing with polyester resin based glues.

The density of the sheet is preferably from 10 and 500 kg/m^3 , most preferably from 100 and 200 kg/m^3 . The thickness of the sheet is generally from 0.2 and 3 mm, most preferably between 0.2 and 1.5 mm.

The preparation of the sheet is carried out according to conventional
25 extrusion-expansion methods.

A preferred method is that described in US 5,362,763, which is herewith incorporated by reference.

Other methods are those described in US 5,362,763, which is also incorporated by reference.

30 The rigidity of the sheet is in function of the thickness of the same: it

increases (not proportionally) with the thickness. The use of reinforcing fillers such as silica, alumina, titanium dioxide, calcium carbonate increases the rigidity of the sheet.

The polyester film is obtained from low melting polyesters able to permit the closure of the container by heat-sealing. The melting point of these polyesters is generally from 50° to 200°C, most preferably between 80° and 120°C. Examples of polyesters are copolyethylene terephthalates in which more than 10% of units deriving from terephthalic acid are substituted by units deriving from isophthalic acid or its mixtures with other bicarboxylic acids such as naphthalene bicarboxylic acids.

Preferably the polyester film is a coextruded dual layer film in which one layer is formed by a heat-sealable low melting copolyester and the other layer a conventional type polyester such as PET or copolyesters with a melting point higher than 200°C. The use of the dual layer film permits to realize the closure of the container by sealing in a very simple and effective way.

An example of a usable dual layer film is TERPHANE film from Toray Plastics Europe S.A. (TERPHANE is a registered trademark of Toray Plastics Europe).

The dual layer film as well as the mono layered film generally has a thickness from 10 to 25 micron.

In containers, the polyester film represents the layer that comes into contact with the liquid or food, and which prevents the leakage of beverage or loss of flavour from the container.

Furthermore, for machinability reasons in the packaging phase, the polyester film can be applied on both sides of the foamed sheet.

To improve the gas barrier properties of the polyester film, the same is subjected to a surface treatment giving it barrier properties or materials with barrier properties such as aluminum and oxides of aluminum and silicon (Al_2O_3 and SiO_x) are applied.

A representative surface treatment is the lacquering of the film with a layer of lithium or potassium polysilicate. The treatment permits to realize a very slow oxygen permeability rate that can reach 0.3 ml/m²/24h/atm or less.

The application of a layer of aluminum and Al and/or Si oxides is made
5 according to known methods.

The surface treatment and the application of barrier materials are chosen and conducted in such a way that the polyester film is able to realize oxygen permeation rate lower than 70 ml/m²/24h/atm (ASTM 1434).

In the case of a film metallized with Al or coated with Al and/or Si
10 oxides, the oxygen permeation rate can decrease to values lower than 0.3 ml/m²/24h/atm. Values lower than 10 ml/m²/24h/atm are preferred.

The layer of aluminum or of other material applied on the film represents in any case a percentage by weight with respect to the weight of the film so small that the metallized film is considered in recycling as formed with only
15 polyester.

The thickness of the film having barrier properties is generally from 12 to 36 micron.

As already indicated, the polyester film is the side of the containers that comes into contact with the beverage or food: in the case of a film treated to
20 improve the barrier properties, the untreated side is that which comes into contact with the beverage or food.

It is also possible, and this in function of the various requirements, such as for example printing with inks or other, to place the treated film as the external layer and having the foamed sheet onto which the film is adhered as
25 the internal layer.

Also in this case, the untreated film is that which comes into contact with the beverage or food.

Examples of polyester film metallized with aluminum are obtainable on the market under the name of Nu Roll of Nuroll S.p.A. (Nu roll is a
30 registered trademark of Nuroll S.p.A.).

The production of the containers is realized by folding the multi-layer material according to a pattern pressed on the sheet by creasing, set to develop the shape of the container.

The containers can have different shape and volume according to their end use. Cubic, oblong or pyramidal shapes can be used. Generally the volume of the containers for beverages and fruit juices is between 0.2 and 2 litres.

The polyester utilized for the preparation of the multi-layered material is an aromatic polyester obtainable by polycondensation of an aromatic bicarboxylic acid with a diol of 2-12 carbon atoms.

The polyester used in the foam sheet is preferably selected from polyethylene terephthalates and its copolymers in which up to 20% in moles of units deriving from terephthalic acid are substituted by units deriving from isophthalic acid and/or naphthalene-dicarboxylic acid.

For the preparation of the foamed sheet as well as the film adhered on the foam sheet, recycled polyesters can be used.

EXAMPLE 1

The following examples are provided to illustrate but not limit the invention.

A PET foamed sheet, of thickness 0.7mm and density 180 kg/m^3 , coming from a bobbin is adhered with a polyester glue to a copolyethylene terephthalate film having units of isophthalic acid and having a melting point of 120°C .

The film, 15 micron of thickness, is metallized on one side with a layer of aluminum of about 200 \AA in thickness and is adhered with the metallized side on the foamed sheet. The dual layer material thus obtained is creased to develop the shape of a container having capacity of 0.5 to 1.5 litres utilized for medium shelf life milk and fruit juices.

The container is hermetically closeable by heat-sealing. The closure is easily tear-openable.

A PET foamed sheet with the characteristics reported in Example 1, is adhered with the use of a polyester glue to a dual layer film TERPHANE having thickness of 15 micron.

5 The multi-layered material this way obtained is utilized for the production of containers for fresh milk and similar beverages by means of creasing and folding. The containers are hermetically closeable by heat-sealing and the closure is easily tear-openable.

The disclosures in Italian Patent Applications No. MI98A001463 and
10 MI98A002078 from which this application claims priority are incorporated
herein by reference.

WHAT IS CLAIMED IS:

1. Recyclable heat-sealable multi-layer material suitable for the production of containers for beverages and foods, comprising a layer formed
5 of a polyester resin foamed sheet having density lower than 700 kg/m^3 and, adhered to the foamed sheet, a heat-sealable film of polyester resin, said material having creased on it a pattern suitable to develop by folding the shape of a container.

2. Multi-layer material according to claim 1 in which the polyester film
10 is obtained from a low melting polyester having a melting point from 50° to 200°C .

3. Multi-layer material according to claim 2 in which the polyester film is obtained from a resin with melting point from 80 to 110°C .

4. Material according to claim 1 in which the polyester film is a
15 coextruded dual layer film, one layer of which is formed of a low melting polyester having a melting point from 50° to 200°C and the other layer is a polyester having a melting point higher than 200°C .

5. Multi-layer material according to claim 1 in which the polyester film is a film subjected on one side to a treatment capable to impart gas barrier
20 properties or coated with a layer of material having gas barrier properties.

6. Material according to claim 5 in which the polyester film having barrier properties presents oxygen permeation rate lower than $70 \text{ ml/m}^3/24\text{h/atm}$ (ASTM 1434).

7. Material according to claim 6 in which the polyester film is
25 metallized with Al or coated with a layer of aluminum or silicon oxide.

8. Multi-layer material according to claim 6 in which the polyester film is coated with a layer of potassium or lithium polysilicates.

9. Material according to claim 1 in which the polyester film is obtained from a copolyethylene terephthalate in which more than 10% of the units
30 deriving from terephthalic acid are substituted with units deriving from

10. Multi-layer material according to claim 1 in which the polyester film is made to adhere to the foamed sheet by using a polyester glue or by hot lamination.

12. Multi-layer material according to claim 1 in which the foamed sheet has a density from 100 to 200 kg/m³.

14. Multi-layer material according to claim 13 having a thickness from 0.2 to 1.5 mm.

16. Containers for beverages or foods manufactured from the multi-layer material according to claim 1.

18. Containers according to claim 17 for fruit juices or sterilized milk in which the polyester film is treated on the side adhered to the foamed sheet with a material capable of conferring barrier properties corresponding to oxygen permeation rate lower than 70 ml/m²/24h/atm.

20. Containers according to preceding claim 19 in which the oxygen
30 permeation rate is less than 0.3 ml/m²/24h/atm.

Figure 1 consists of 12 histograms arranged in a single column. Each histogram represents the distribution of the number of non-zero elements in the vector x for a specific value of n . The values of n are 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, and 120, labeled on the right side of each plot. The x-axis for all plots ranges from 0 to 120, and the y-axis ranges from 0 to 10. As n increases, the distribution of non-zero elements shifts to the right, indicating that the vector x contains more non-zero elements as n grows.

ABSTRACT OF THE DISCLOSURE

Recyclable multi-layer material of polyester resin suitable for the production of beverage and food containers comprising a layer of foam in polyester resin with density lower than 700 kg/m^3 , and a film of polyester resin adhered to the foamed sheet. On the multi-layer material a pattern is creased according to which by folding it is possible to develop the shape of a container.

Declaration and Power of Attorney for patent Application

Dichiarazione e procura ai fini della domanda di brevetto

Italian Language Declaration Docket No. 32461/GM/1p

Il sottoscritto inventore dichiara che:

La propria residenza, recapito postale e cittadinanza corrispondono a quanto indicato in calce, sotto la propria firma.

Ritiene di essere il primo ed unico inventore originale (se viene elencato in calce un solo nominativo) o il coinventore primo ed originale (se è elencato più di un nominativo) del oggetto rivendicato e per il quale il sottoscritto presenta domanda di brevetto. La invenzione in questione è chiamata

MATERIALI. MULTISTRATO RECICLABILI IN
RESINA POLIESTERE

e la sua descrizione è allegata alla presente Dichiarazione a meno che non sia spuntata la seguente casella:

- ☐ Il _____
è stata depositata una domanda di brevetto
statunitense numero o una domanda di brevetto
internazionale PCT numero _____
che è stata modificata il _____
(se applicabile).

Il sottoscritto dichiara in oltre di aver letto e compreso il contenuto della descrizione identificata in precedenza, rivendicazioni comprese, come modificati dall'eventuale modifica summenzionata.

Il sottoscritto riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codice dei Regolamenti Federali, §1.56.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

RECYCLABLE MULTI-LAYER MATERIAL OF
POLYESTER RESIN

the specification of which is attached hereto unless the following box is checked:

- ☐ was filed on _____
as United States Application Number or PCT
International Application Number _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

Italian Language Declaration

Il sottoscritto rivendico con la presente la priorità prevista dal Titolo 35, Codice degli Stati Uniti, § 119(e)-(d) o § 365(a) in relazione a qualsiasi domanda o domande estere di brevetto o certificato di inventore, o dal Titolo 35, § 365(a) degli stessi Codice in relazione a qualsiasi domanda internazionale PCT nella quale è designato almeno un paese diverso dagli Stati Uniti, I suddetti domande e certificati essendo elencati sotto, e, spuntando le seguenti caselle, ha anche identificato sotto qualsiasi domanda estera di brevetto o certificato di inventore, o domanda internazionale PCT, la cui data di deposito preceda quella della domanda per la quale è rivendicata la priorità.

Prior foreign application(s)

Domande Estere Anteriori

MI98A001463

(Number)

(Numero)

MI98A002078

(Number)

(Numero)

ITALY (ITALIA)

(Country)

(Nazione)

ITALY (ITALIA)

(Country)

(Nazione)

Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codici degli Stati Uniti, § 119(e), in relazione a qualsiasi domanda o domande provvisorie degli Stati Uniti elencate sotto.

(Application No.)

(N° della domanda)

(Filing Date)

(Data di deposito)

(Application No.)

(N° della domanda)

(Filing Date)

(Data di deposito)

Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codice degli Stati Uniti, §120, in relazione a qualsiasi domanda o domande statunitensi, o dal Titolo 35, § 365(c) degli stessi Codice in relazione a qualsiasi domanda internazionale PCT nella quale sono designati gli Stati Uniti, I suddette domande essendo elencate sotto e, nella misura in cui l'oggetto di ciascuna rivendicazione di questa domanda non sia stato esposto nella domanda statunitense o internazionale PCT anteriore nel modo previsto dal primo paragrafo del Titolo 35, Codice degli Stati Uniti, § 112, riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codici dei Regolamenti Federali, §156, le quali diventino disponibili durante il periodo compreso tra la data di deposito della domanda anteriore e la data di deposito nazionale o internazionale PCT della presente domanda.

(Application No.)

(N° della domanda)

(Filing Date)

(Data di deposito)

(Application No.)

(N° della domanda)

(Filing Date)

(Data di deposito)

Con la presente, il sottoscritto dichiara veritiere tutte le affermazioni contenute in questa domanda in relazione alle proprie conoscenze e di ritenere vere tutte le affermazioni o informazioni presentate. Dichiara inoltre che tali asserzioni sono state espresse nella piena consapevolezza che le dichiarazioni intenzionalmente false sono punibili con una multa, l'incarcerazione o entrambe, ai sensi della Sezione 1001 del Titolo 18 del Codice degli Stati Uniti e che tali dichiarazioni intenzionalmente false possono mettere a repentaglio la validità della domanda o di qualsiasi brevetto rilasciato in merito.

I hereby claim foreign priority under Title 35, United States Code, §119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed:

Priority not claimed

Diritto di priorità non rivendicato

26 JUNE 1998 (26.6.1998)

(Day/Month/Year Filed)

(Giorno, Mese/Anno di deposito)

25 SEPTEMBER 1998 (25.9.1998)

(Day/Month/Year Filed)

(Giorno, Mese/Anno di deposito)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Status) (patented, pending, abandoned)

(Stato) (concessione de brevetto, in corso di esame, abbandono)

(Status) (patented, pending, abandoned)

(Stato) (concessione de brevetto, in corso di esame, abbandono)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Italian Language Declaration

PROCURA: Io, sottoscritto inventore, nomino con la presente il seguente avvocato o avvocati e/o agente o agenti al fine di istruire questa pratica e di condurre tutte le operazioni ad essa pertinenti presso l'Ufficio dei Brevetti e Marchi di Fabbrica: *(Elencare il nome ed il numero di matricola)*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

Guido MODIANO (Reg. No. 19,928)

Albert JOSIF (Reg. No. 22,917)

Daniel J. O'BYRNE (Reg. No. 36,625)

Inviare le corrispondenza a:

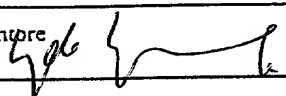
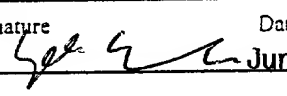
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Nome e cognome dell'unico o del primo inventore Guido GHISOLFI		Full name of sole or first inventor Guido GHISOLFI	
Firma dell'inventore 	Date 10.6.1999	Inventor's signature 	Date June 10, 1999
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Nome e completo dell'eventuale secondo coinventore		Full name of second or joint inventor	
Firma del secondo inventore	Date	Inventor's signature	Date
Residenza		Residence	
Cittadinanza		Citizenship	
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(Fornire le stesse informazioni e le firme del terzo e degli ulteriori coinventori.)

(Supply similar information and signature for third and sub-sequent joint inventors.)